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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,763	09/22/2000	Jae-Choon Ryu	3430-0135P	8193

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EXAMINER

DI GRAZIO, JEANNE A

ART UNIT PAPER NUMBER

2871

DATE MAILED: 09/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application

09/667,763

Applicant(s)

RYU ET AL.

Examiner

Jeanne A. Di Grazio

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Priority

Applicant claims foreign priority to September 27, 1999, Korean Patent Application 1999-41242. Certified copies of the foreign documents have not yet been received as of the date of this First Office Action. Certified copies are required.

Response to Preliminary Amendment

Proper numbering of the claims pursuant to Preliminary Amendment is so noted; however, Applicant is respectfully advised to make the following corrections noted in "Claim Objections" below.

Claim Objections

Claims 1,3,7,9,10,13,15, and 18 are objected to because of the following informalities: The word "orientation" is misspelled in claims 1,7,9, and 13. The word "substrate" is misspelled in claims 1 and 9. In claims 3 and 18 the expression "to has" is not clear and should be changed. In claim 7, "includes" should be "include." In claim 9, an appropriate word should be inserted between the words "pattern" and "a" (Line 6). In claim 10, an appropriate word should be inserted in the phrase "the patterning the orientation." In claim 13, insert a comma after the word "comprising." In claim 15, "the step of rubbing is performed after the step of rubbing" is not clear. Appropriate correction is required. *Please also note the numerous grammatical and or spelling corrections made to the specification.*

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined

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was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim 1 is rejected under 35 U.S.C. 102(e) as being clearly anticipated by Sago et al. (USPN 6,436,472 B1).

Per claim 1: ... providing the substrate on a stage [1 and or 2]; positioning a slit coater having a slit nozzle on the substrate [10]; and spraying an orientation material on the substrate through the slit nozzle of the slit coater ... Sago et al. essentially discloses Applicant's method of claim 1. "Stage" is broadly interpreted to mean a 'support' or the like. See also Column 2, Lines 1-12.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sago et al. (USPN 6,436,472 B1) in view of Shinohara et al. (USPN 6,261,856 B1).

Per claims 2-8:

- Orientation film thickness is about 0.8 μm to about 1.0 μm .

It is generally preferable to have an orientation film as thin as possible in keeping with the general desire to manufacture thinner LC devices. It is also necessary to have as thin a film as possible because the orientation film affects key parameters of a liquid crystal such as molecular orientation and tilt, for example.

- Slit coater sprays an orientation material out of the slit nozzle to has a surface tension. Sago et al. discloses a slit nozzle through which various materials are sprayed. Sago et al. further discloses that the solution to be sprayed should have a reduced surface tension so as not to impede fluid flow out of the nozzle [Col. 2].

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- Slit nozzle is at a predetermined distance from the substrate.
Sago et al. discloses the importance of distance from nozzle to substrate [Col. 4, Lines 65-67 and Col. 5, Lines 3-5].
- (further comprising ...) providing at least one laser device irradiating a laser beam.
Laser scribing techniques are well known in the art because these techniques can be performed at a low cost and high speed. Specifically, Shinohara et al. discloses a method of laser processing whereby an ITO film is subjected to laser scribing in order to produce desired patterns on the ITO film [Col. 2, Lines 1-2].
- (further comprising ...) patterning predetermined portions of the orientation film using the laser beam.
Shinohara et al. discloses a laser scribing technique on an ITO film.
- Predetermined portions includes a spraying surface of the orientation material.
Because Applicant's orientation film is sprayed, and it is desired to pattern the film, these predetermined portions would necessarily have to be a spraying surface of the orientation material.
- Laser includes an excimer laser.
Shinohara et al. discloses an excimer laser as a method of laser scribing [Col. 3, Lines 1-3].

Per claims 9-15: (reads identical to independent claim 1 except as here noted) patterning an orientation pattern a predetermined portion of the orientation material ...

- Patterning orientation pattern includes irradiating a laser beam.
- Laser includes an excimer laser.
- Predetermined portion includes a spraying surface of the orientation material.
- (further comprising) rubbing the orientation material.
- Rubbing step is performed after the step of spraying (OR, after the step of rubbing).

Rubbing is commonly done in the art for the purpose of alignment on an alignment or orientation film. Furthermore, it is logical that the step of rubbing would be performed after the step of spraying because it is the orientation film that one would most likely want to rub such that LC molecules could be aligned.

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The Examiner interprets "the step of rubbing after the step of rubbing" to possibly mean multiple steps of rubbing for the purpose of alignment and or re-alignment of the LC molecules.

Per claims 16-20: providing the substrate on a stage; positioning a slit coater having a slit nozzle and an orientation material, the slit nozzle being a predetermined distance from the substrate; and spraying an orientation material on the substrate through the slit nozzle of the slit coater ...

- Orientation film thickness is about 0.8 μm to about 1.0 μm .
- Slit coater sprays an orientation material out of the slit nozzle to has a surface tension.
- (further comprising) providing at least one laser device irradiating a laser beam; and patterning predetermined portions of the orientation film using the laser beam.
- Laser beam is an excimer laser.

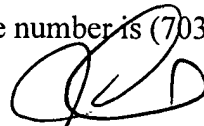
Please see above arguments.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (703)305-7009. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Sikes can be reached on (703)308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-8741 for regular communications and (703)746-8741 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Jeanne Andrea Di Grazio



James A. Dudek, Primary Examiner

JDG

September 19, 2002